ARIZONA DEPARTMENT OF TRANSPORTATION

Linking the Long-Range Plan and Capital Improvement Program

P2P Link

Working Paper No. 1

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Arizona Department of Transportation
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Acronyms and Glossary

- 15 Percent Funds – 12.6% statutory requirement (ARS 28-6538) plus 2.6% of ADOT HURF funds allocated to MAG and PAG for limited improvements on limited access facilities by the STB.
- AASHTO – American Association of State Highway Transportation Officials
- ACIP – Airport Capital Improvement Program
- ADOT – Arizona Department of Transportation
- ADOT Discretionary Funds – A portion of HURF funds that are combined with Federal Aid Highway Funds to provide the basis for the ADOT Highway Construction Program.
- APMS – Airport Pavement Management System
- ARS – Arizona Revised Statutes
- bqAZ – Building a Quality Arizona, a 2010 Statewide Transportation Planning Framework Study
- Casa Grande Resolves – A 1999 agreement between ADOT, the COGs, and MPOs of Arizona to guide the transportation planning and programming for the state.
- CE – Categorical Exclusion
- CMAQ – Congestion Mitigation and Air Quality Improvement Program initiated in 1991 as part of ISTEA
- COG – Council of Governments
- DBE – Disadvantaged Business Enterprise
- DE – District Engineer
- DPS – Department of Public Safety
- FHWA – Federal Highway Administration
- FTA – Federal Transit Administration
- FFY – Federal Fiscal Year
- GHG – Greenhouse Gas
- Highway Construction Program Manual / Statewide Transportation Improvement Program – Document that defines the current priority programming process used by ADOT.
- HMC – Highways Management Committee
- HSIP – Highway Safety Improvement Program initiated under SAFETEA-LU
- HTF – Highway Trust Fund
- HURF – Highway User Revenue Funds are comprised of funds from the gasoline and use fuel taxes, a portion of the vehicle license tax, registration fees, and other miscellaneous sources.

- ICAP – Indirect Cost Allocation Plan
- ISTEA – Intermodal Surface Transportation Efficiency Act of 1991, Federal Aid Funding Authorization from 1992 – 1997
- ITD – ADOT's Intermodal Transportation Division
- LRTP – Long-Range Transportation Plan
- MAG – Maricopa Association of Governments
- MAP-21 – Moving Ahead for Progress in the 21st Century Act, Federal Aid Funding Authorization for 2012 – 2014
- MPD – ADOT's Multimodal Planning Division
- MPO – Municipal Planning Organization
- MVD – Motor Vehicle Division
- NEPA – National Environmental Policy Act
- NHPP – National Highway Performance Program initiated under MAP-21
- NHS – National Highway System
- P2P Link – Linking the Long-Range Plan and Capital Improvement Program project
- PAC – Project Advisory Committee
- PAG – Pima Association of Governments
- PMT – Project Management Team
- PNRS – Projects of National and Regional Significance
- PPAC – Priority Planning Advisory Committee
- PPP – Priority Programming Process
- PPT – Priority Programming Team is a subgroup of the TAC, which administers, tracks, and monitors the PPP and the scoping process.
- PRB – Project Review Board, which serves as a forum for hearing requests for projects already under design requiring cost or schedule program changes, technical conflicts, or problem issues with management.
- PRF – Project Request Form
- RAAC – Resource Allocation Advisory Committee which recommends revenue and distribution of funds for the Five-Year Transportation Facilities Construction Program.
- RARF - Regional Area Road Fund
- RIC - Recommended Investment Choice
- RTPFP – Regional Transportation Plan Freeway Program

- SAFETEA-LU – Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, Federal Aid Funding Authorization (2004 – 2009)
- STB – State Transportation Board, a seven-member panel established under ARS 28 Chapter 2, Article 1 whose members are appointed by the Governor. Members of the panel serve six-year terms and represent different geographical regions of the state.
- STB #20 – State Transportation Board Policy #20 stating that approval by the PPAC is required for material cost changes derived from quantity or unit price changes for items that are part of the approved scope of the project if they exceed a specified amount.
- State Statute ARS 28-6538 – 12.6% of the HURF funds flowing to ADOT are earmarked for MAG and PAG.
- STIP – State Transportation Improvement Program
- STP - Surface Transportation Program
- TA – Transportation Alternatives
- TAC – Technical Advisory Committee is an internal ADOT staff committee that reviews and evaluates programming requests, funding availability, coordinates with stakeholders, and recommends the priority program for PPAC review.
- TE – Transportation Enhancements
- TEA21 – Federal Aid Funding Authorization from 1998 – 2003
- THPP – Tribal High Priority Projects
- TIFIA – Transportation Infrastructure Financing and Innovation Act, which provides federal credit assistance to eligible STP projects.
- TIP – Transportation Improvement Program
- TMA – Transportation Management Area
- US DOT – U.S. Department of Transportation
- VLT – Vehicle License Tax
- VMT – Vehicle Miles Travelled

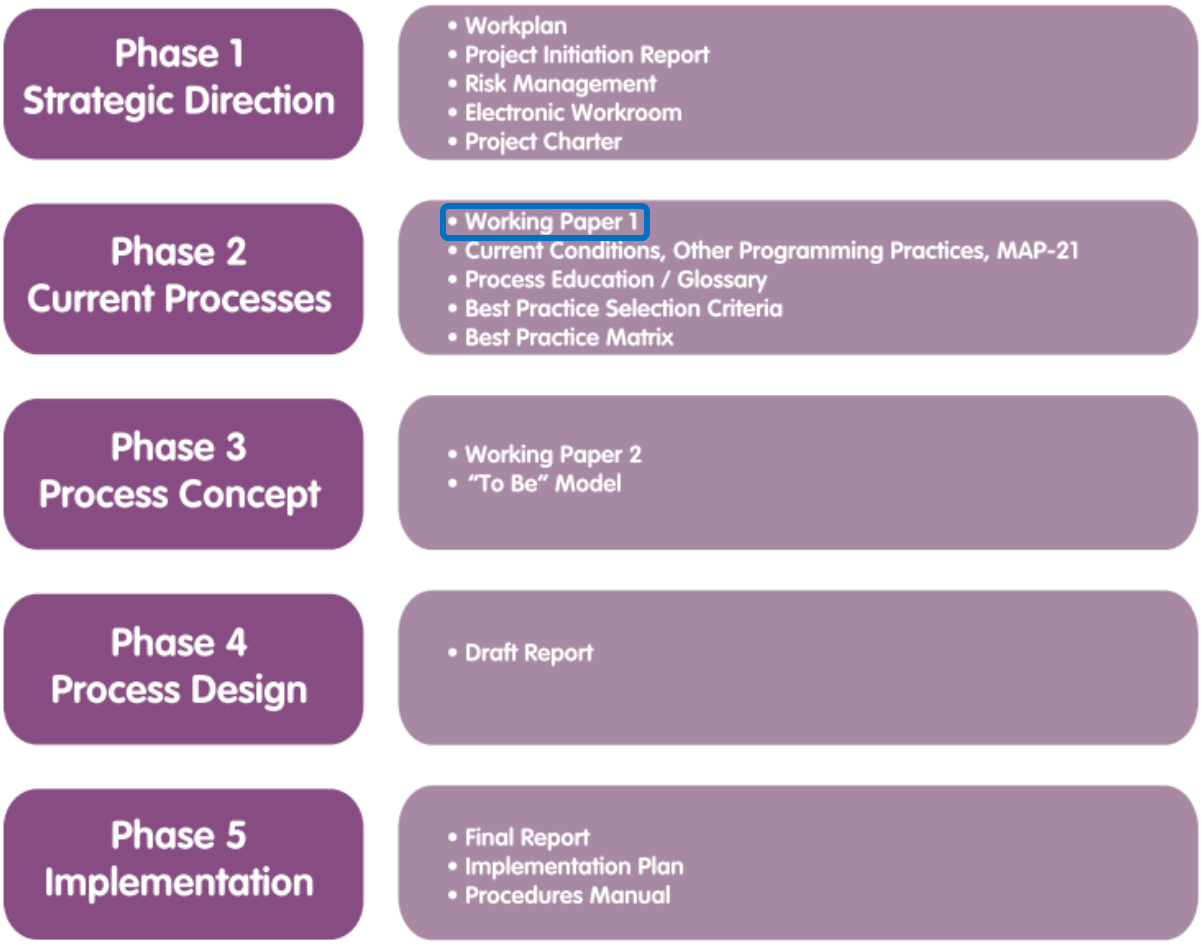
1 Introduction

The principal basis of *Linking the Long-Range Plan and Capital Improvement Program (P2P Link)* is to establish a well-documented, understandable, logical, and defensible means of selecting and prioritizing projects in the capital improvement program that will allow the Arizona State Transportation System to meet the objectives identified in the Long Range Transportation Plan (LRTP). The approach preferred by the leadership of the Arizona Department of Transportation (ADOT), and now supported by Moving Ahead for Progress in the 21st Century (MAP-21) legislation, requires that the system be evaluated from a variety of critical perspectives and that decisions be made on the basis of system performance. Within ADOT, performance is well-defined for some system measures, such as pavement and bridge conditions, while other measures, such as congestion mitigation, economic development, and freight, do not have a strong history of performance-based guidance in Arizona. ADOT intends to develop clear objectives for how the system elements will be expected to perform so they can help identify system priorities and strategically select projects for a capital program that will meet ADOT's policy objectives. P2P Link is designed to implement a "best-in-class" performance-based planning process, which will include recommendations about what ADOT should consider under performance categories to comply with MAP-21. Implementation of a revised process will require changes in ADOT's overall approach, including a more comprehensive set of procedures for measuring performance. It will also require a more strategic allocation of resources based on priorities set in accordance with performance. These changes will allow the resulting program to more directly address State transportation policy. A revised process will also help to make the most efficient use of resources in these financially constrained times.

P2P Link is being approached through five project phases that include a series of deliverables documenting its development, as shown in Figure 1-1. Early phases include a thorough review of the current practice at ADOT and at similar agencies across the nation, which is captured in Working Paper No. 1. This will serve as a foundation for gaining a comprehensive

understanding of the issues and opportunities to be addressed and permit formulation of an updated and relevant process for linking plans with implementation. In later phases, the P2P Link effort will include designing methodologies that will help not only link the long-range plan to the capital improvement program, but will also show how projects are distributed among the four Recommended Investment Choice RIC categories.

Figure 1-1: Project Documentation



1.1 Intent of Working Paper No. 1

Working Paper No. 1 presents a view of current practices both at ADOT and around the country, as well as a look at the new requirements imposed by MAP-21. The premise is that by understanding the current practices and requirements, and taking advantage of ideas tested elsewhere, ADOT can make informed decisions about changes needed to establish a programming process to most effectively manage the Arizona State Transportation System. This section provides an introduction to the Working Paper's primary objectives.

Section 2 summarizes the current ADOT programming process. The current process has evolved over time and, historically, has served the program reasonably well. Under changing economic and financial conditions and under new requirements imposed by recent legislation, the current process no longer offers the flexibility now needed to manage the capital program where projects may need to be shifted depending on available funding. An understanding of what ADOT does today is critical to determining which elements of the process must be eliminated, which must change, or which must remain in any future processes developed. As part of the review of ADOT practices, information was collected from interviews with staff charged with managing various aspects of the programming process. The findings show some of the opportunities to improve coordination among many smaller programs and areas of responsibility and also the ways in which the programming process can take advantage of new rules.

Section 3 presents opportunities from programs tried elsewhere. As with ADOT, other states have gone through or are going through similar transitions in their programming practices. Some have moved toward a new approach based on system performance in which the condition of the system, or parts of the system, help to determine how resources can be most effectively distributed. This fits with legislative mandates and with a need to make the best use of limited resources while delivering the best possible transportation system as defined by state priorities. Some of the states that have undertaken changes in the programming process can offer ADOT and Arizona good examples to emulate. Their best practices will allow ADOT to avoid many of the pitfalls of overhauling an established process and move more seamlessly to a performance-based programming practice that includes all aspects of the State's transportation system.

Section 4 recognizes the effect of the new federal legislation on how programming should be accomplished at the state level to comply with federal expectations for the national transportation system. The recently passed MAP-21 establishes requirements that states must incorporate into their programming processes. In particular, it emphasizes performance and asset management as basic tools for decision-making. ADOT is studying the bill and assessing the requirements as they apply to Arizona. As noted above, the experience in other states can help ADOT develop and facilitate updated procedures that will also address MAP-21 requirements.

Moving forward in the P2P Link development, the information and analysis presented in Working Paper No. 1 will equip the project team with background knowledge needed to advance to the next project phase, which includes the following:

- Identifying changes needed to the current process, organizational structure, and state statutes
- Ensuring planning goals are comprehensive and meet MAP-21 requirements
- Establishing specific targets for the planning goals
- Determining the best practices that will work well for Arizona

Such decisions will be the basis for developing conceptual "to-be" programming models for Arizona.

2 Existing Programming Process

ADOT's current process for developing the Five-Year Transportation Facilities Construction Program, referred to as the Priority Programming Process (PPP), was established in the early 1990s. Since that time, changes in the economic landscape, the agency's organizational structure, and the linking of planning to programming philosophy, as well as changes in federal and state guidance, have impacted the PPP, resulting in incremental adjustments to the process. The current practices that have evolved over the years have resulted in a cumbersome process, where tracking project prioritization are not fully integrated with system goals and are not coordinated among the many participants in the process.

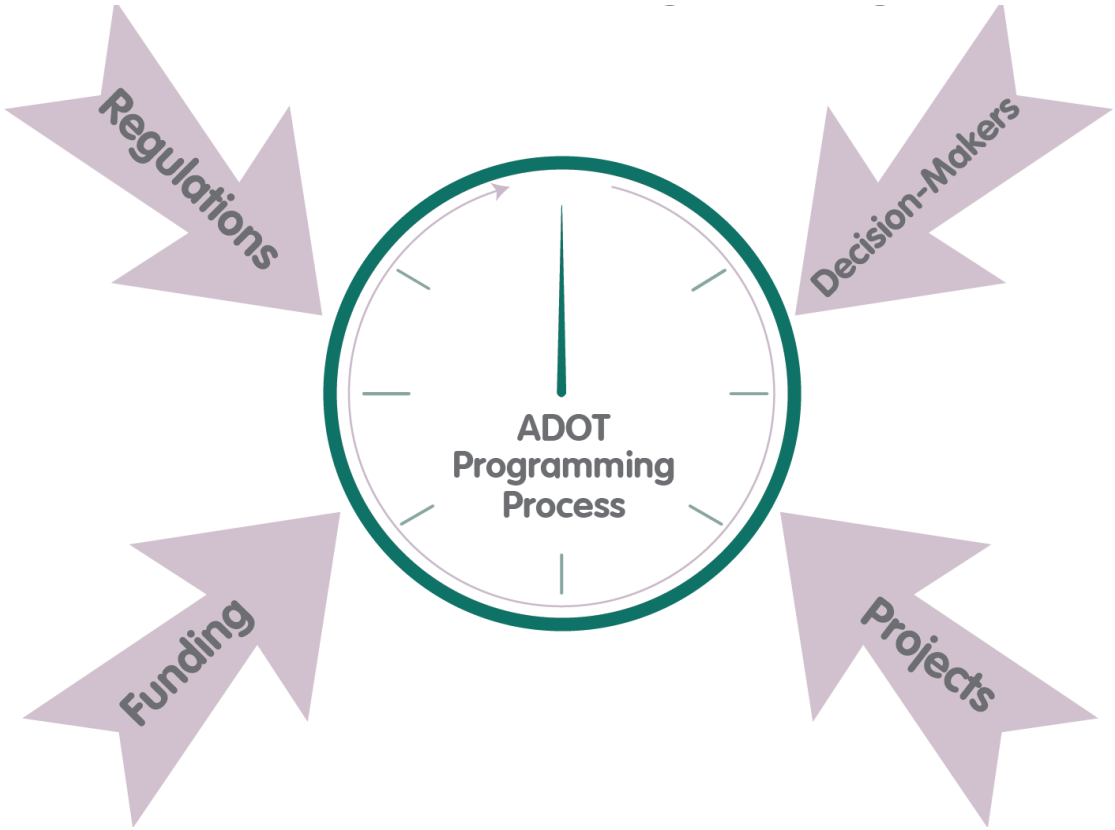
This section presents a simplified overview of the PPP as documented in the "Highway Construction Program Manual / Statewide Transportation Improvement Program" as understood by involved staff at the time of development. The presentation of current practice is guided to a large degree by a baseline assessment of the process strengths and weaknesses, possible areas of change, process improvement, and statute modifications. It includes information on state and federal statutes; State Transportation Board (STB) Guidelines; funding availability and distribution; and project selection and prioritization. The purpose of reflecting on the documented process, including the way staff and partners view it, is to understand the changes that will be required to overhaul the process.

The development of a comprehensive grasp of current practices and the documented process has occurred through research and interviews with key staff. Their perspectives on the programming process, which include both challenges and opportunities for improvement, are also provided in this section.

2.1 Programming Process

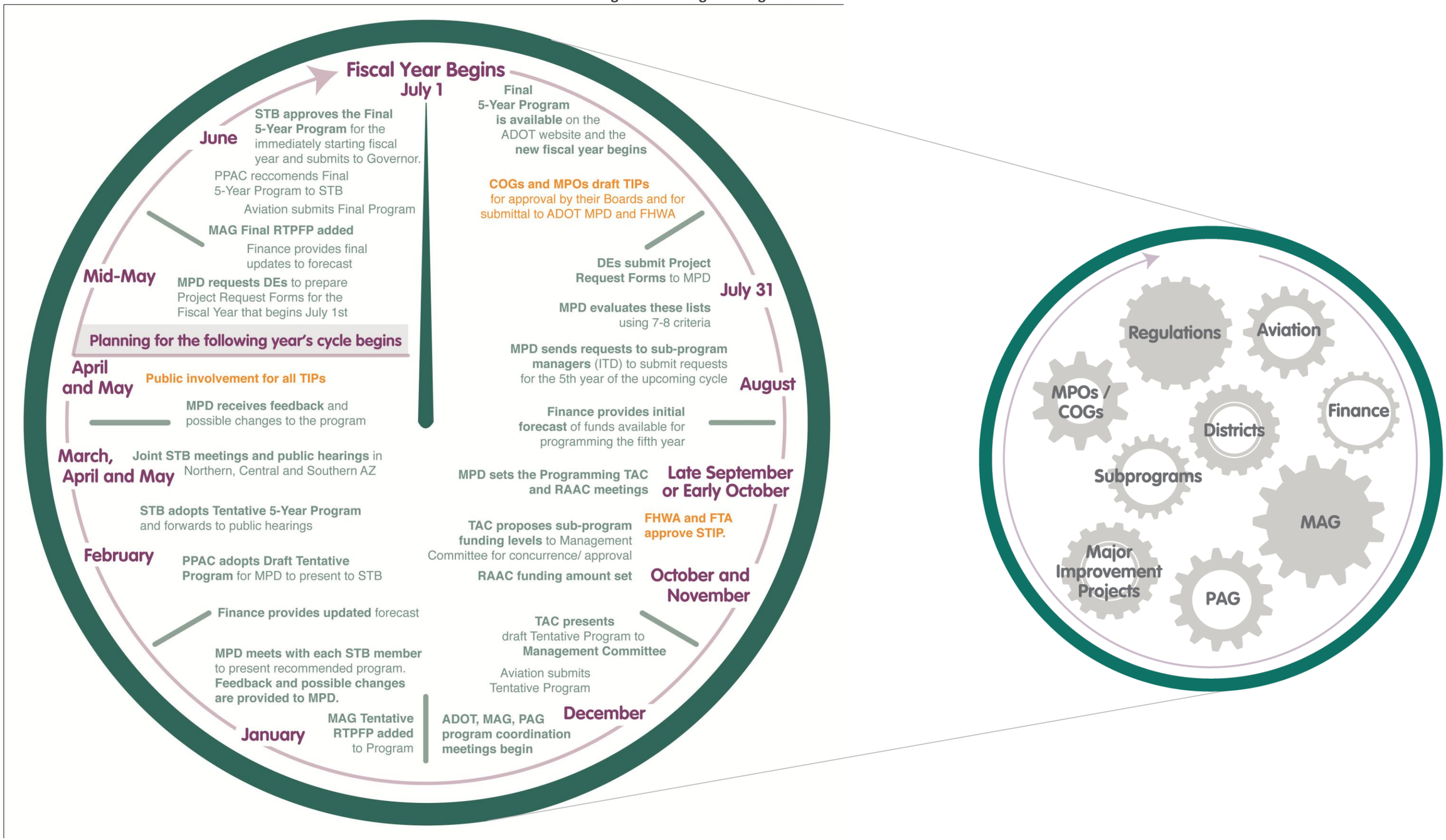
Several factors influence the programming process – Regulations, Decision-Makers, Funding, and Projects. The following sections describe these influences and assess their effectiveness against changed conditions from the development of the PPP.

Figure 2-1: Influences to the Programming Process



ADOT's programming process follows an annual cycle as mandated by state statute, which is outlined in Figure 2-2. The program includes Highway, Metropolitan Planning Organization/Council of Governments (MPO/COG), and Aviation components, resulting in the Five-Year Transportation Facilities Construction Program. Key activities are required throughout the fiscal year by the process decision-makers. As currently managed, working through these activities takes approximately 14 months, starting in May with requests to the District Engineers (DEs) to prepare Project Request Forms (PRF) and ending June 30 of the following year with the STB approval and submission of the Five-Year Program to the Governor. Many sub-processes support the key activities as integral parts of the annual cycle. Each sub-process is composed of several activities, sometimes independent and sometimes interrelated to other sub-processes.

Figure 2-2: Programming Process



ADOT has a solid record of delivering the program each year. However, the list of challenges to be navigated each cycle is growing with activities that may detract from the logic, transparency, and reproducibility of the process. When considering the new regulations of MAP-21 and "best in class" performance-based planning practices, the current programming process is:

- **Inflexible –** The current programming process worked adequately when sufficient state and federal funding was available. With the downturn in the economy, the state is faced with removing projects from the program while remaining accountable for delivering a safe and functional transportation system. Along with establishing project priorities, processes to adjust project placement in the program must be developed to account for these conditions.
- **Incomplete –** Not all elements of the transportation system have the necessary performance measurements needed to be accurately assessed as required by the new regulations. In addition, the current process lacks an evaluation loop. Systems are not in place to judge how well projects, once constructed or implemented, meet their intended goals or move the system closer to its intended goal.
- **Decentralized Data –** Performance information is collected for key technical areas, but it is incomplete across all units. In addition, the metrics are inconsistent with achieving a common objective of delivering a safe and reliable transportation system. Further, the information collected isn't centrally accessible to provide a system-wide snapshot of conditions and information, making it difficult to obtain a qualitative overall system assessment or identify "hot spots" with cross-technical needs.
- **Inconsistent Vocabulary –** A common language of planning and programming vocabulary does not exist across the department and among the partner agencies. Many planning and programming terms and functions have different meanings to staff involved with the programming process. This is further complicated with the offset state and federal fiscal years.

2.2 Regulations

Both state and federal regulations guide the planning and programming process within Arizona. These regulations were adopted in the 1990s, with some policy revisions implemented by the STB in 2011. The adoption of MAP-21 by the U.S. Congress in 2012 has imposed a series of additional requirements on how the programming process must be conducted to ensure system-wide performance.

The following sections provide insight on the current regulation structure. The intent is to provide an understanding of the existing regulations and where change may be desirable. The state regulations are generally not in conflict with the requirements of MAP-21; however, implementation of best practices in planning and programming may require new state legislation. Some potential examples include expanding the program timeline (from 5 to 10 years), implementing the LRTP RIC (how do the goals apply to MPOs/COGs), and simplifying the programming structure (reduce the layers of decision-making). How much change to state legislation, if any, will depend on choices made by ADOT staff during the development of the P2P Link.

2.2.1 State

The transportation section of the Arizona Revised Statutes (ARS), Title 28, provides authority and guidance for ADOT activities. The key sections of ARS Title 28 are as follows:

- Chapter 2 addresses Transportation Administration, including the STB and ADOT Director. Article 7 establishes the Transportation Planning Division with requirements for a LRTP and the use of performance-based programming in the development of the LRTP and Five-Year Transportation Facilities Construction Program.
- Chapter 17 guides regional sales taxes distribution and regional transportation planning.
- Chapter 18 deals with the distribution of Highway User Revenue Funds (HURF).
- Chapter 20, Article 3 provides guidance for the development and modification of the Five-Year Transportation Facilities Construction Program.
- Chapter 21 addresses state highway financing and bonding.
- Chapter 25 includes guidance on aviation and responsibilities of the ADOT Aeronautics Division.

In January 2011, the STB issued revised policies, which are grouped into the following categories and provide general guidance and support to the planning and programming processes. All current ADOT operations fall into one or more of these categories:

1. Multi-Modal System Planning and Development
2. System Management
3. Programming and Funding
4. Fiscal and Administrative Accountability
5. External Relations

2.2.2 Federal

The Code of Federal Regulations provides authority and guidance on the use of federal transportation funds. Title 14 addresses **Aviation,** Title 23 addresses **Highways**, and Title 49 addresses **Transit**. The latest federal surface transportation legislation, MAP-21, includes a number of provisions that require states to adopt performance-based programming practices. MAP-21 will also set minimum criteria for critical aspects of the program.

Each past federal authorization included changes in funding categories, guidance, and procedural requirements. In 2004, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) significantly increased funding to states by spending down the Highway Trust Fund (HTF) to a zero balance. The current authorization, MAP-21, remains at the same level. While earlier funding acts provided greater flexibility in the use of federal funding, the more recent authorizations (SAFETEA-LU and MAP-21) have focused on safety, congestion, and system preservation. As federal funding makes up a majority of the funds available to ADOT, the federal funding categories and requirements will have a significant effect on the focus of the Five-Year Transportation Facilities Construction Program.

2.3 Decision-Making Groups

The programming process at ADOT involves a large number of decision-making bodies that have been established, in some cases, to oversee or advise on specific elements of the program. Some of the areas of the decision-making structure appear to be redundant while some areas do not perform their function as originally defined having morphed into a different role or expanded to cover other roles. While many of the decision-making elements are needed to manage the program as it is formulated each year, it would be appropriate to investigate which elements should be retained and which eliminated to simplify the programming approval process as well as the program oversight once the program is in place. The decision-making groups currently involved in the programming process are described in the subsequent sections.

In Maricopa and Pima Counties, ADOT shares responsibility for project selection with the Maricopa Association of Governments (MAG) and the Pima Association of Governments (PAG), respectively. MAG, by state statute, is responsible for establishing project priority within the MAG region. The highway portion of the MAG TIP is developed cooperatively between MAG and ADOT. PAG and ADOT also work cooperatively to develop the highway program for the PAG area, but the PAG projects are included in the ADOT program.

2.3.1 State Transportation Board

The STB is a seven-member panel established under ARS 28 Chapter 2, Article 1 whose members are appointed by the Governor. Members of the panel serve six-year terms and represent different geographical regions of the state. This panel presides over the establishment of priorities and also awards all highway contracts. ARS 28-304 defines the powers and duties of the STB. With respect to highways and the programming process, the STB has the following functions:

- Establish a complete system of state highway routes
- Determine which state highway routes, or portions of the routes, are accepted into the state highway system and which state highway routes to improve
- Establish, open, relocate, or alter a portion of a state route or state highway
- Vacate or abandon a portion of a state route or state highway
- Establish policies and the relative weights given to criteria to guide the development or modification of the Five-Year Program, award all construction contracts for transportation facilities, and monitor the status of the construction projects
- Determine the priority program planning with respect to transportation facilities

2.3.2 Resource Allocation Advisory Committee

The Resource Allocation Advisory Committee (RAAC) recommends priorities and distribution of funds for the Five-Year Transportation Facilities Construction Program to the ADOT Director. Resources are allocated by the RAAC for three categories: System Preservation, System Improvements, and System

Management. The committee comprises representation from the following ADOT departments and agencies:

- ADOT Deputy Director
- ADOT Director MPD
- ADOT State Engineer
- ADOT Chief Financial Officer
- COG Executive Director
- MAG Executive Director
- MPO Executive Director
- PAG Executive Director
- TMA Transit Director

2.3.3 Priority Planning Advisory Committee

The Priority Planning Advisory Committee (PPAC) is a statutory public body appointed by the ADOT Director and subject to ARS Title 38 Open Meeting Laws of Arizona. The committee is responsible for updating and preparing the Five-Year Transportation Facilities Construction Program. Adhering to ARS 28-6951 (B), the ADOT Director appoints members to the Committee. The PPAC members by position are as follows:

- **Chairman** – Division Director of MPD
- **Vice-Chair** – State Engineer
- Aeronautics Manager
- Assistant Director of Finance and Accounting
- Deputy State Engineer of Development
- Deputy State Engineer of Operations and Valley Transportation
- Director of Planning and Programming
- Director of Transit Programs and Grants
- Director of Enforcement and Compliance Division
- Three Non-Voting Members – Chairman of the Citizens Transportation Oversight Committee, Director of Government Relations, Director of Communications

The PPAC responsibilities include the following:

- Assist in the development of the Five-Year Program
- Recommend priorities on transportation facilities construction projects
- Hold meetings to review the Five-Year Program and make changes as necessary
- Review priority changes in costs and schedule
- Review the adopted Five-Year Program and make recommendations in a written report to the STB for priority changes

The PPAC assists the STB in setting priorities for the PPP. The committee oversees a Technical Advisory Committee (TAC) and recommends the final program and any changes to the existing program to the STB. The work of the PPAC is guided by the Transportation Board Policies, which are reviewed periodically and updated as needed. The PPAC holds public meetings each month to review proposed changes to the Five-Year Transportation Facilities Construction Program and to determine which

projects will be recommended to the STB for approval. All construction project changes submitted to the PPAC must be approved by the Project Review Board (PRB), described in Section 2.3.4, prior to PPAC approval. Approval by the PPAC is required for material cost changes derived from quantity or unit price changes for items that are part of the approved scope of the project if they exceed a specified amount, consistent with STB Policy No. 20. MAG programmed projects require both PPAC and MAG approval of for schedule and material cost changes of projects prior to submittal to the STB per ARS 28-6353. Modifications to programmed projects must be approved by the STB.

2.3.4 Support Committees

Project Review Board

The PRB is a forum for hearing requests from individual project managers about projects already under design that require cost or schedule changes to the program. The PRB also discusses technical conflicts or issues with project development. The Deputy State Engineer for the Development Program is responsible to the State Engineer for administering the Project Development Process and chairs the PRB. He/she and the PRB approve or recommend to the PPAC the requested changes in project scope, budget, and schedule. Issues requiring program changes are forwarded to the PPAC for approval to be changed or added to the adopted Five-Year Program. Meetings are held approximately every week.

Programming Technical Advisory Committee

The TAC is an internal ADOT staff committee. This committee reviews and evaluates programming requests and funding availability, coordinates with stakeholders, and recommends the draft program for PPAC review. The TAC has the important function of coordination and communication among the participants of the PPP. The TAC, for example, facilitates meetings with the DEs, as well as with MPOs, COGs, and other involved parties to establish the pool of possible projects for the program. The Priority Programming Team is a subgroup of the TAC, which administers, tracks, and monitors the PPP and the scoping process. Currently, the TAC consists of 12 staff members, three from the Intermodal Transportation Division (ITD), four from the Multimodal Planning Division (MPD), one member from Finance and Accounting, one member for Enforcement and Compliance Division and three non-voting members.

Highways Management Committee

The Highways Management Committee (HMC) consists of representatives of the State Engineer's Office and the MPD Director and Chief Financial Officer. This team reviews the overall financial funding projections and provides funding-level guidance and direction on sub-program allocation amounts to the TAC as well as pre-draft review of the Draft Tentative Five-Year Program prior to PPAC submittal.

2.4 Funding

As a reflection of the economic times, Arizona, like many states, has faced significant shifts in how capital improvements are funded, by both amount and source. Financial forecasts for the immediate horizon indicate this trend will continue. In addition to not having sufficient funding to address the state's transportation system needs, the reduced available funding has also created logistical

programming challenges. Systematic mechanisms to remove projects from the program are not defined, resulting in constituent suspicion about "what happened to my project?" from the various constituent groups like DEs, Program Managers, MPOs/COGs, etc. Shifts in funding sources have also presented challenges for ADOT. State funds have dwindled to the point that federal funding now supports many functions previously funded by the state. Use of federal funding comes with many requirements and procedures not always familiar to ADOT staff.

Aside from issues related to the economy, implementation of best practices may also cause changes in ADOT's funding structure. The LRTP prescribes a desired funding distribution among four improvement categories. Traditionally, three funding categories were used, which does not conform to the latest LRTP. Several areas will need to be addressed with P2P Link, including the following:

- Definition of the categories
- Adjustment of discretionary funds distribution to achieve the RIC goals
- Where possible, ensure consistent implementation of the RIC goals by MPOs and COGs
- Incorporation of MAP-21

Background on how funding sources and resource allocation interact is provided in the following sections. The information provides a baseline understanding of the current processes and conditions from which impacts associated with proposed changes can be discerned. The implications of changing the funding structure will need to be factored into the overhaul of the programming process.

2.4.1 Funding Sources

ADOT funding sources include HURF, Federal Aid Highway Funds, and other miscellaneous sources. In the past, HURF comprised a large portion of the funds available, but that has changed as state revenues have declined as a result of the economic downturn. Most funding currently available is from federal sources and ADOT's program has had to learn how to process federal funding within the current programming context. Over time, funding sources could come from federal, state, or other sources (private, toll, public-private partnership, etc.). The programming process will need to be able to incorporate any of these funding sources.

HURF

The HURF comprises funds from the gasoline and use fuel taxes, a portion of the vehicle license tax, registration fees, and other miscellaneous sources. Of the total HURF revenue collected in FFY 2012, 37.6% came from the gasoline tax and another 14.9% came from the sale of diesel fuel. The portion of the Vehicle License Tax (VLT) that flows into the HURF accounted for 26.5% of total HURF funds. According to the Arizona constitution, HURF funds can only be used on highways and streets; therefore, HURF funds cannot be used for transit purposes.

ADOT, Arizona counties, cities, and towns, and the Department of Public Safety (DPS) receive an allocation from HURF. Of the funds remaining after the allocation to DPS, ADOT receives 50.5%. For the purposes of revenue forecasting, total HURF funds are projected based on projected population and economic growth, assuming no change in tax rates. Total HURF funds are then distributed to ADOT and

the other entities based on the current statutory formula and policy. From the ADOT HURF allocation, State Statute ARS 28-6538 provides that an additional 12.6% of the HURF funds flowing to ADOT are earmarked for MAG and PAG. In addition, the STB #20 established that another 2.6% of ADOT HURF funds would be allocated to the two regions. These funds are divided into 75% for the MAG and 25% for the PAG. These funds are referred to as "15 Percent Funds" and are spent for improvements on limited access facilities on the State Highway System, as well as HURF bond repayment.

After the deduction of the "15 Percent Funds," ADOT must pay for operations and maintenance and debt service on outstanding bonds. This includes funds for the Motor Vehicle Division, administration, highway maintenance, and additional funding for DPS. The remaining HURF funds are then combined with Federal Aid Highway Funds and in total are referred to as "ADOT Discretionary Funds," which provide the basis for the ADOT Five-Year Transportation Facilities Construction Program.

Federal Aid Highway Funds

Under MAP-21, states are allocated federal funding through fiscal year 2014. Traditionally, the federal funding legislation included numerous funding categories with eligibility requirements, which limited the use or required local or off-system distribution. MAP-21 has reduced the number of categories while adding significant requirements to use performance measurements. More information is provided in Section 4 of this paper.

Previously, nearly all federal funds programmed were used for construction. Development costs for projects are now being programmed, but have not been included for all projects programmed and obligated in earlier years. As a result, the amount available for construction in a given year will effectively be reduced. Tracking or estimating this impact will take time and programming iterations.

Regional

The MAG Regional Area Road Fund (RARF) Transportation Excise Tax is a half cent sales tax applied in Maricopa County for transportation uses. By statute these funds are distributed to three categories: Freeways/Highways (56.2%), Arterial Streets (10.5%), and Transit (33.3%). The RARF Freeway/Highway funds are combined with ADOT and Federal funds to form the Regional Freeway/Highway Life Cycle Program. These funds are allocated for the construction, maintenance and operation of new and existing controlled access facilities within the MAG Region; most of which are ADOT facilities. Project identification and programming is a cooperative effort between ADOT and MAG.

Distribution

The distribution of the "Discretionary Funds" drives the identification of projects and development of the new fifth year of each Five-Year Program. The Casa Grande Resolves defined the process for the distribution of "Discretionary Funds". As a result of this process, the RAAC was established and set the distribution of "Discretionary Funds" at 37% for MAG, 13% for PAG, and 50% for the other state counties. ARS 28-304 C. 1 states that the percentage of ADOT discretionary monies allocated to the MAG region in the Regional Transportation Plan shall not increase or decrease unless the STB, in cooperation with the regional planning agency, agrees to change the percentage of the discretionary monies.

Numerous system-wide allocations are removed from the "Discretionary Funds" amount prior to calculating the distribution amount. These system-wide items are known as "RAAC Off the Top" items. Additionally, the regional share amount is also reduced by the estimated sub-program expenditures for the region to identify the amount of funding available for major projects for the regions. These amounts are presented and discussed at the RAAC meeting, and used by MAG and PAG in the development of their regional program for inclusion in the state's Five-Year Program.

2.4.2 Resource Allocation Categories

Under current practice, all items in the ADOT Five-Year Transportation Facilities Construction Program fall under one of three major Resource Allocation Categories. These three major categories represent the three fundamental functions of the program:

- **System Preservation (Series 100 Projects)** – Focuses on managing assets and preserving the existing system infrastructure, including pavements, bridges, safety features, transit facilities, and roadway-related features.
- **System Management (Series 200 Projects)** – Funds a variety of contingency items and outside services that support the development and operation of the transportation system. This category generally does not generate construction projects; however, many of the development support items are used on preservation and improvement projects. The funding sources also allowed for scope and funding changes without impacting other programmed projects.
- **System Improvement (Series 300 Projects)** – Focuses on improving the operation, capacity, and mobility provided by the system, including major and spot improvements, District Minor projects and traffic signals.

Each major category contains several specific targeted program areas, which in turn contain focused subprograms. These programs and subprograms have their own code series within their respective category series.

The Resource Allocation Categories allowed for a simplified way of defining and viewing the funding allocations in the program under the existing system. Funding requests for the specific categories are reviewed by the TAC/HMC prior to development of the Draft Tentative Five-Year Program. System Preservation and Management allocations have historically been fairly stable amounts. When adjustments to overall funding are necessary, they usually occur in the System Improvements category. The District Minor subprogram portion of the System Improvements Category, which provided a minimum of funds to each District to assign at their discretion, was traditionally unaffected. Adjustments usually occurred in the Major Corridor and Spot improvement programs.

Current programming allocations do not follow the RIC identified in the most recent LRTP. A clear definition of expenditure areas will need to be established by ADOT. A sample of the kinds of questions that will arise includes the following:

- Where do system management expenditures fit?
- Are rest areas and ports of entry included in highways or non-highway?

- Development-support subprograms could be used for preservation, modernization, expansion, or non-highway
- Where do operating support subprograms fit?
- When combining maintenance and modernization, how do you classify, prioritize, and measure projects?

The previous resource allocation system was intended to be linked to GASB 34 asset management requirements for updating infrastructure value. Considering the requirements of MAP-21, the new RIC classifications tie funding allocations to system goals as set forth in adopted state transportation policy. These will be instrumental in identifying an asset management foundation for infrastructure administration.

2.5 Projects

Projects to be included in the Five-Year Program are identified through several sources then prioritized by the decision-making groups noted in Section 2.3. The project sources include a culmination of input from the Districts, Technical Development Groups, MPOs and COGs, local agencies, and the public. Under current practice, each source uses criteria specific to its area of expertise to identify and prioritize projects. An overall framework for a statewide systematic approach to assessing conditions is not yet defined in a way that provides for a clear linkage to the LRTP.

2.5.1 Highway Project Selection

MAG

MAG and ADOT (Valley Project Management) work together using MAG's Life Cycle Program to identify major construction projects to be funded in the MAG area. Funding includes not only ADOT discretionary allocation, but also 12.6%, 2.6%, and Regional Area Road Funds to be used on the ADOT system. This Regional Transportation Plan Freeway Program (RTPFP) is included as a separate section in ADOT's Five-Year Construction Program. Projects identified and funded by ADOT subprograms are listed in ADOT's portion of the Five-Year Program.

PAG

PAG's program is developed in cooperation with ADOT and also includes 12.6%, 2.6%, and Regional Transportation Funds, as well as ADOT "Discretionary Funds." Unlike MAG, the PAG program is included as an integral part of ADOT's Five-Year Program.

Subprograms

Numerous subprograms are used to allocate funding to various technical areas to address specifically identified system deficiencies or desired improvements to the state transportation system. Approximately 90% of the projects in the current Five-Year Program are derived from subprograms. The range of subprograms has evolved over time, resulting in an oversight process that is complex to manage. Over the past few programming cycles, efforts to reduce the number of subprograms have been successful. Further consolidation may be desirable to simplify and homogenize project makeup.

Table 2-1 shows the current subprograms in use. Traditionally, the subprograms programmed specific projects for the first three years of the program and worked from a list of potential projects to fill the last two years. This was done so that scoping could occur to better define the cost and delivery issues associated with the projects.

Table 2-1: Subprograms for System Preservation

Technical Area	Subprogram	Traditional Funding Sources
Bridge	Inspection and Inventory	BR / NHPP STP
	Bridge Replacement (ADOT)	BR / NHPP STP
	Bridge Replacement (Local)	BR / NHPP STP
	Scour Retrofit	BR / NHPP STP
Materials	Pavement Pres	STP IM NH / NHPP STP
	Slope Management	IM NH STP / NHPP STP
Traffic	Highway Safety Improvement Program (ADOT)	HSIP / HSIP
	Highway Safety Improvement Program (LOCAL)	HSIP / HSIP
	Safety Slope Program	HSIP / HSIP
	Sign Rehabilitation	IM / NHPP
	High Risk Rural Roads	
	Railway Highway Crossing	HRC / HSIP
	New Signals	HURF
District	District Minor Program	STP / STP
Statewide Project Management	Local Government Program	STP HURF / STP
	Enhancement Program (ADOT)	STP (TEA)/ TA
	Enhancement Program (Local)	STP (TEA) / TA
Others	Rest Area Program	STP / STP
	Climbing Lane Program	STP / STP
	ITS / FMS System Program	
	Border Infrastructure Program	CBI / STP
	Statewide Scoping	STP / STP
	Ports of Entry	IM NH / NHPP
	State Parks Program	HURF / HURF

System Preservation subprograms produce most of the construction projects in the Five-Year Program—about 70%. Approximately 25% of the projects come from subprograms in the System Improvements Category. System Management funds do not generate any construction projects but rather support the development of construction projects as well as the management and administration of ADOT.

Each subprogram develops a list of projects and sets independent priorities by using various performance factors that relate to the type of projects they produce and funding utilized. Some

subprograms were initiated with a statewide study, such as the Passing/Climbing Lane and Minor Interchange categories.

- **Bridge:** The statewide bridge management system is evaluated based upon condition and prioritized "worst first." Needs are also addressed by including bridge replacements and repairs with previously programmed projects.
- **Materials:** The pavement management system evaluates statewide resources and prioritizes needs to maintain a defined system condition.
- **Traffic:** The safety program has subsections to address specific issues or conform to federal funding categories. Project funding eligibility requires a positive benefit-to-cost ratio; however, candidate projects are not ranked against each other. Project lists are developed and prioritized by district. This effort is coordinated by the Regional Traffic representatives.
- **District:** District minor projects are identified by each engineering district. The programming process relies on the subprogram manager to gather the data needed, complete the analysis, and produce a prioritized list of projects for their program.

Subprogram managers coordinate with the Districts and local governments when working on project prioritization. Priorities may be affected by other projects developed in other groups if they can combine projects with another group, such as shoulder widening with a pavement preservation project.

Major and Spot Projects

Major and spot projects fall under the System Improvements Resource Allocation Category. ADOT staff identifies projects on the major corridors, while DEs recommend and suggest spot improvements based on their knowledge of the specific circumstances and the input from various entities. The current practice requires a scoping document for each project before it can be programmed. The following procedures are used in developing the project pool, then selecting projects:

- The lists of projects that have been scoped are forwarded to the Districts. Only projects on this list can be candidates for the program.
- The scoped projects are reviewed with the TAC and PPAC to ensure that they meet the goals of ADOT.
- The District completes the project request form (PRF). The Districts and COGs coordinate on the project request. All projects must have a completed PRF to be considered as a candidate for the program. If a PRF is not completely filled out, the Priority Programming Team (PPT) will return it to the requestor.
- The PPT screens the project to determine if the project has been scoped. If the project has not been scoped, then the project is not a candidate for the program.
- The PPT compiles the data for each project. All projects must have the data sheets completed.
- The submitted projects are prioritized by rank based on performance and strategic criteria.

- The PPT submits the data and priorities to the TAC for evaluation. Revisions to the data and priorities are made if necessary and the TAC identifies the projects to be recommended for the program.
- The TAC determines the funds available for both Major Projects and for Major Spot Projects and the TAC prepares a final recommended list of projects. The funds must be consistent with the RAAC priorities.

Highway Project Prioritization

Historically, project priorities were developed for both candidate major construction projects and for potential scoping projects using an Excel spreadsheet, as described in Chapter 6 of the "Highway Construction Program Manual / Statewide Transportation Improvement Program." Priorities are computed on performance-based and strategic criteria. The process for prioritizing both major capital and scoping projects includes the following steps:

- Obtain project request forms from ADOT Districts for both major projects and scoping projects, including the District project priorities.
- Collect or compute data for each criterion from established data sources.
- Enter the data for each criterion.
- Assign a number of points based on the data for each criterion.
- Compute a score for each project for each criterion in relation to the other projects. The scoring process is discussed in a later section.
- Compute a total score representing the project priority for each project across all the criteria.
- Order projects by priority and group into tiers. Projects are grouped into tiers in recognition that projects with small differences in rank basically have the same order of rank.

The methodology used in the project prioritization process compares basic performance-based and other criteria for each project against all other candidate projects. Projects are then selected by the Project Advisory Committee (PAC) from the projects that have the highest scores in the prioritization process. As stated above, by using the tier system the PAC has a broader choice of projects that are grouped in closeness of rank and not just left to choose projects based solely on score. There may be projects that are separated by as little as one-tenth of a point. While this is a complex set of steps, a version of it could lend itself well to a revised structure to comply with performance management and other MAP-21 requirements.

2.5.2 Aviation

The aviation portion of the Five-Year Transportation Facilities Construction Program—the Five-Year Airport Capital Improvement Program (ACIP)—has a program development process similar to the highway program and is also governed by the STB. Full details are available in the "Airport Development Guidelines," October 2011.

Funding sources for aviation are different and exclusive from those used for the highway program. Funding of the State Aviation Fund comes mainly from flight property tax, aircraft lieu tax, aircraft registration, and aviation fuel tax. Funds are allocated to five program areas per STB guidance:

1. Federal/State/Local Grants
2. State/Local Grants
3. Airport Pavement Management System (APMS)
4. Airport Loan Program
5. Statewide System Planning and Services

ADOT Aeronautics contacts all public airports in the state to obtain their desired projects. Projects are reviewed for acceptance into the ACIP database. The proposed projects are then rated and prioritized using Project Component and Airport Measure rating systems, funding levels for each airport development program, and applied to the prioritized list. All federal/state/local grant projects are included. This Draft ACIP is then included in the Draft Five-Year Transportation Facilities Construction Program and uses the ADOT public involvement process.

2.5.3 Transit

ADOT operates no transit systems directly but functions as administrator or in an oversight capacity for a number of Federal Transit Administration (FTA) programs, notably FTA Sections 5310 and 5311, although other funding grants can also be part of the program. Most funds are distributed through a grant application process using ADOT, COG, and MPO representatives for the regional and state selection process. Projects are not included in the ADOT Five-Year Transportation Facilities Construction Program; however, lump sum Surface Transportation Program (STP) flex funding is programmed to support the FTA funded programs and are included in the STIP.

Depending on the level of transit activity and the extent of any non-highway programs in the future, ADOT could face a higher demand for transit (bus or rail) funding support as part of multimodal efforts statewide. The planning and programming structure will need to accommodate such possibilities in how it is developed.

2.6 Current Practice Assessment

The current ADOT programming practices have been summarized above to serve as a framework for overhauling the process. This section provides a collective evaluation of the current practices from ADOT staff, as well as the P2P Link team. Broad observations of the overall process are provided, followed by common challenges voiced by ADOT staff during interviews.

2.6.1 Summary of Programming Process Observations

Considering the current practices with respect to the goals and objectives of P2P Link, some general observations have been made by ADOT and the P2P Link team. These include the following:

- Current content of the Five-Year Program exceeds available funding given today's economy and the economy forecasted for the next few years.

- Process is not easily adaptable for changing conditions. The process worked well when available funding better aligned with system needs, but the current process doesn't address how to handle the lack of funds to deliver the program.
- System performance information is incomplete and is not centrally stored, which impacts not only the accessibility of the information to decision-making groups, but the ability to holistically analyze the system.
- Programming terms have different meanings to the different people involved with the programming process.
- Processes are not in place to assess how well projects, once constructed or implemented, meet their intended goals.
- Some current practices do not comply with the requirements of MAP-21. Changes are needed for Arizona to continue to receive its full federal funding allocation.
- Federal funding for development of previously programmed projects is not accounted for in the current Five-Year Program and may affect available funding.
- Current programming allocations do not follow the RIC identified in the most recent LRTP.
- A statewide systematic approach to assessing condition is not in place, which then leads to project identification and prioritization not necessarily working to accomplish the LRTP goals.
- The number of subprograms adds complexity to the programming process.

2.6.2 Common Challenges Identified by Staff

The P2P Link team met with ADOT staff during September and October to develop an understanding of current practices documented in this paper, as well as to identify challenges with current programming process and opportunities for improvement. Some common themes emerged from the interviews:

- Districts are highly involved with identifying projects. In addition to their input on major, minor, and scoping projects, all subprogram managers factor their input into identifying and prioritizing subprogram projects. With the exception of pavement and bridge subprograms, work is prioritized per District, not statewide.
- The current programming process is not broadly understood by staff.
- The federal-aid process has created confusion for staff. An internal committee has been formed to educate staff on how to use federal funds for project development. Staff uses the Indirect Cost Allocation Plan (ICAP) to account for internal ADOT administration costs. Additional considerations include the following:
    - Appears to transfer non-project-specific ADOT administrative costs to construction program funding.
    - Appears to be applied to 15% and Regional Area Road Fund (RARF) funded construction projects even though these are not federally reimbursable.

  - Annual adjustments in ICAP rates require program adjustments unless they apply to only the new program year. This perpetuates a program maintenance issue.

- Offset federal and state fiscal years is challenging. Staff tends not to talk the same language. Efforts are underway to improve this now with 15-month programming cycle and internal training.
- The process is not flexible for changes in project costs, and changes are generally viewed badly. All changes must go through the PRB/PPAC/STB.
- Statewide guidance on priorities (such as corridors or networks) would be helpful to the various sources generating project priorities.
- The need exists for statewide studies to be conducted to assess condition, test best practice concepts, and incorporate innovation.
- Recent ADOT organizational changes create support opportunities for implementing the overhauled programming process. Examples include newly defined positions in the State Engineer's Office for Performance Management, Programming Development (Development), Conditions Assessment (Operations), and restructuring of the Statewide Project Management Group to align with Districts.

3 Attributes of Best Practice for Linking the Statewide Transportation Planning Process to Capital Programming

The purpose of Section 3 is to identify the attributes of best practice for linking statewide planning and programming, and to identify candidate states that have instituted some of these best practices. Follow-up research, analysis, and dialogue with the identified states will be structured to provide guidance on how to modify or improve ADOT's existing planning and programming processes to implement these best practices. The approach is to identify states from which ADOT can learn because they have mature practices that are recognized as best practice, because they are pursuing the types of improvements that ADOT needs, and because they are further along in implementation. Particular emphasis will be placed on learning from these states how to manage and make the changes required to implement improved practices.

Definitional note

Federal law and Arizona statute address the transportation planning process. The Federal Highway Administration, the Federal Transit Administration, and the Federal Railroad Administration establish rules and provide guidance for implementing federal law. In general terms, federal law defines the transportation planning process to include the steps through which a statewide long-range plan, MPO long-range plan, the State Transportation Improvement Program, and Transportation Improvement Programs are established. For the purposes of this document, these general definitions are followed.

3.1 Best Practice Attributes

This section provides an overview of best practices for both planning and programming because linking programming and planning requires a planning process that includes performance-based system or network-level analysis. The attributes of best practice are also discussed.

3.1.1 Statewide Transportation Planning Requirements for Best Practice – Overview

In simplest terms, best practice involves establishing plans for the current and future performance of the transportation system. The task for programming is then to identify, select, and prioritize projects that become a program of projects that implement the plan. In this way, programming commits funds to projects. When the linkage is tight and well managed, it should be possible to provide transparency and accountability to policymakers and stakeholders regarding what level of performance will be delivered through the implementation of the program. While the concepts are simple, the execution is complex because there are always different, and at times competing, interests and priorities for the overall plan and its implementation through the programming process.

Contemporary best practice requires a system planning process through which objectives are set for the management, operation, and development of Arizona's transportation system. Best practice is to establish a series of measurable performance objectives for the current and planned future performance of the transportation system. Typically, these are identified in the statewide transportation planning process and included in long-range planning documents, such as the LRTP.

The lessons learned from best practice indicate that to link planning and programming in a performance-based approach requires a robust capability to analyze and evaluate the performance of the transportation system. This can include any combination of network analysis at the state, corridor, MPO, and COG levels. Transportation system analysis at the statewide level, the MPO level, and for major corridors quantifies system-level needs for meeting the planned level of performance for the transportation system. Needs are generally grouped into categories such as capacity or mobility, system preservation, and safety, among others. Best practice is for these categories to be policy-driven, therefore, they vary from state to state albeit with many common themes. In Arizona, the four identified categories of need are reflected in the adopted RIC developed during the formulation of the LRTP. They are: preservation, modernization, expansion, and non-highway needs.

Best practice involves using the results of system planning analysis to identify what level of transportation system performance is "bought" when different investment decisions are made. By doing so, planning analysis is used by policymakers to establish strategic investment priorities by allocating funds between broad policy objectives such as mobility, system preservation, safety, or economic development. Under best practice, the process is policy driven and supported by technical analysis that explains the level of performance implications of different investment decisions. For example, if a state funds pavement preservation at a level that minimizes life-cycle costs, the analysis explains which funds are left to address capacity projects. Such analysis enables policymakers to make broad system-level tradeoffs between different categories of need.

Best practice provides the policy direction and investment priorities to drive the allocation of resources among the major categories of performance evaluated in the planning process and set by the plan. In a best practice process, the system planning and analysis and programmatic decision-making is the first step in a performance-based programming process. The second step is the selection and prioritization of projects into a program that addresses the planned level of performance for each of the categories. This involves different planning and analysis approaches for different performance categories.

3.1.2 Performance-Based Programming Best Practice – Overview

Programming is the process by which projects are selected and funds are committed to them. In a performance-based process, funds are committed in a way that most effectively meets the performance objectives for the transportation system established by system-level analysis. As previously noted, system performance should be established in statewide, MPO, or corridor plans. Since programs are short term and plans address longer-term horizons, there needs to be clear procedures for scoping projects and prioritizing them in the near term as part of the program to meet the overall system performance objectives.

ADOT's major work activity in this area is selecting projects for inclusion in the Five-Year Program and updating the LRTP. The selection of projects is constrained by the availability of funds for each type of project. Under best practice, planning analysis is not just conducted at the project level, but also at the corridor and system levels. The preferred approach is to identify and prioritize projects to implement corridor and system plans. This requires a strong link between planning and programming, such that projects are selected to implement the plan. In this way, individual project selection decisions, when added together, develop the planned transportation system.

In general terms, best practice can be characterized as having a program structure that allocates resources between broad categories of need (i.e., the LRTP RIC categories), and then applies prioritization criteria within these categories of need to build the program. The overall program structure is planning-driven and based upon the types of needs or planning objectives, such as mobility, safety, or economic development. With such an approach, the "color of money" does not drive programming. To the extent possible within the constraints governing their use, funds are allocated to meet planning and programming priorities. It is understood that constraints on the use of federal and state funds must be followed. Under best practice, it is not the funding source restrictions that should drive the process, but ADOT's overall policy objectives.

3.1.3 Performance-Based Project Prioritization Best Practice – Overview

Project prioritization is the process through which projects that meet a particular programming category are prioritized. Generally, this involves evaluating the merits of comparable types of projects. Prioritization approaches within categories will reflect policy, stakeholder, and technical criteria. Under best practice, the categories are based on type or category of need and not funding categories.

Best practice involves a transparent and reproducible process. The decision-making criteria used to allocate resources between categories of projects and prioritize projects within categories are known. In general, best practice requires that objectives be defined for each category of project and then a procedure be established for ensuring that the project achieves these objectives. For example, many states have established a policy-driven objective that supports economic development and economic development projects. Best practice would involve establishing a reproducible procedure for determining economic benefit and prioritizing projects according to the anticipated benefit. In the areas of pavement management, bridge management, and benefit/cost analysis of capacity improvement, there are well established technical procedures for prioritizing projects.

3.1.4 Attributes of Best Practices in Performance-Based Planning and Programming

The following are the attributes of best practice:

- **Accountability is provided through a transparent and reproducible process.** Decision-making criteria used to allocate resources between program categories and to program and prioritize projects within categories of need are transparent and known. This provides for accountability and broad participation in the process.
- **There is a common language and understanding within the state department of transportation and among all parties within the planning process – the planning process is implemented by the planning function but is owned by the whole department.** Under best practice, there is a clear understanding across the agency and in regions and districts of the process, and all managers and leaders understand and are able to explain "where projects come from" and what the plan is.
- **There is broad-based "buy-in" and agreement or informed consent on the process – "all agree to the rules of the game and to play by them."** There are many participants in the process. A performance-based process allocates resources in the most effective way to get to the agreed outcomes. This will involve compromises. The process, to be successful, requires the participants to accept project outcomes.
- **The program structure provides a systematic, explicit link between planning, funding, and implementation (programming and project prioritization).** This enables policy decisions regarding resource allocation to be made at the program or planning level. Long-range planning documents such as the statewide plan, corridor plans, and regional plans have the specificity to guide investment. They set priorities between performance categories (types of need), establishing a direct link between system-level analysis and implementation.
- **In addition to mobility or system development, the planning process addresses the life-cycle management of the existing system (asset management) and operations.** The planning process provides the information basis from which to set policy and plan priorities and then to program between categories of need as well as within them. This enables system-level (versus project-level) planning and priority setting. Since the transportation system is a network of different modes of transportation, and within modes different facilities, planning decisions are often best based on a system-level perspective. This is especially important in a fiscally constrained environment because this level of analysis enables consideration of how best to provide the infrastructure to meet a region and the state's diverse travel demands given the funds likely to be available.
- **Accountability for performance is provided by identifying and communicating what level of transportation system performance is "bought" by the Capital Improvement Program.** The process is used to communicate to customers the "performance" that is bought through the planning and programming decisions. Policymakers can establish strategic investment priorities by allocating funds between broad policy objectives such as mobility, system preservation, safety, or economic development. This process should be policy-driven and supported by

technical analysis that explains the level of performance implications of different investment decisions. This type of analysis enables policymakers to make broad, system-level tradeoffs between different categories of need. It requires tools to monitor and predict performance under different plan decisions.

- **The program structure is not overly complex; it addresses broad categories of need; and the programming process applies prioritization criteria within these categories of need to build the program.** There is a trend to reduce the number of program categories and sub-categories to enable planning considerations, not the "color of money," to drive the process. This enables the overall planning structure program to be performance-driven and based upon needs or planning objectives. With such an approach, the "color of money" does not drive programming. To the extent possible, funds, within the constraints governing their use and regardless of source, are allocated to meet performance objectives.
- **Projects are defined that implement corridor and system plans.** Planning and programming are linked so that projects are selected to implement the plan. In this way, individual project-selection decisions, when added together, develop the planned transportation system. This recognizes that many performance decisions are better made at the system, region, or corridor level than on a project-by-project basis. In this way, the performance objectives guide project scope and project definition.
- **There is a continuity of decision-making from planning through programming and project development with plans providing guidance for project-level planning and the identification of design concepts.** This ensures better continuity in decision-making and a more seamless transition regarding project scope and project commitments between planning and project delivery. It also enables stronger management and control of program delivery against scope, schedule, and budget. A planning framework should provide policy direction and identify the specific linkages between region and subarea plans and project development. This is an important planning consideration because without it there is a risk that project design does not address planning intent and avoidable potential rework occurs as project engineers duplicate planning-level work to identify project objectives and establish a design concept.
- **Flexibility is included to address economic development or market-driven needs for transportation improvement.** The transportation planning process addresses future needs that can be identified and planned for. However, many needs related to economic development are market driven and change over relatively short time horizons, so the long-range planning process should be flexible to account for these unforeseen changes.
- **Program categories align with performance or needs categories.** The program structure is not driven by "color of money" but organizes and aligns resources so that they can be allocated to the extent possible without "color of money" considerations.
- **Project prioritization and selection within categories of need applies a technically defensible, transparent, and reproducible performance-based approach.** While the program structure varies between states, best practice applies a technically sound performance-based approach to

project prioritization. In each of the following areas there are well defined best practices for project prioritization: mobility projects, bridge preservation and rehabilitation, pavement preservation, economic development, and safety. Areas for which there are no stabilized best practice, but states are working to improve the process include: prioritizing between asset classes for asset management or preservation type projects.

- **Project eligibility and scoping controls are in place so that projects that are selected and developed meet the program category requirements.** A performance-based approach is designed to ensure the most effective use of funds in meeting the performance objectives established for the system. A best practice approach includes controls so that only work items that meet the program area objectives are eligible for funding. In addition, controls are in place so that scope does not change. For example, a project primarily involving paving would meet pavement preservation objectives and fall under such a category. Other objectives would require separate funding if they were warranted.

The best practice attributes are implemented by states through different combinations of statewide, regional, corridor, or mode-specific plans. This variation is understandable given the different statutory, governance, and transportation system characteristics in different states.

3.2 Candidate States for Best Practices Review

The following states are identified as candidate states for more detailed best practices review. They provide ADOT with peer examples of states with generally similar characteristics. ADOT can engage in dialogue with these states regarding success factors and change management steps that are needed to implement a performance-based process that links planning and programming. Both Oregon and Minnesota have performance-based processes that are recognized as being "best-in-class" and they continue to work to improve them. Colorado has some similarities and continues to work to improve its process and integrate all performance categories into its overall process.

Table 3-1 provides background on the three states recommended for facilitating more detailed peer review and exchange: Minnesota, Oregon, and Colorado. Some interesting attributes of four other states are identified: North Carolina, Utah, Kansas, and Pennsylvania. The considerations for using each state for comparison and best practices dialogue are identified along with their best practices attributes.

Table 3-1: Candidate States for Best Practice Review

Minnesota (MnDOT) – Recommended

Considerations	Best Practice Attributes
▶ Minnesota has been working to establish a performance-based planning framework through a number of plan iterations. ▶ Similar to Arizona, the state is characterized by a large metropolitan area and much less populated areas. ▶ MnDOT is establishing a risk-based planning and programming process. ▶ The MnDOT process has a number of attributes of interest to Arizona. ▶ MnDOT is developing a new corridor-based/context-driven investment prioritization process. ▶ MnDOT is in the final stages of implementing a new system plan. ▶ MnDOT continues to innovate and is now using risk tolerance to guide investment levels among categories of need.	▶ **Policy-based program allocations are based on a mix of needs data and system performance characteristics.** District allocations of federal funds are based on bridge needs (20%), heavy commercial vehicle miles traveled (VMT) (5%), average pavement needs (35%), three-year crash average (10%), congested VMT (15%), transit (5%), and future VMT projections (10%). ▶ **Long-term targets are based on goals.** ▶ **Investment needs are defined "systematically."** ▶ **Financial resources are allocated within investment categories.** ▶ **The statewide Multimodal Plan established key policies (goals) in 10 areas.** Each policy is supported by key strategies (objectives or actions to be taken). Targets and indicators are established under each policy area to track progress on the goal and strategies the indicators support.

Oregon (ODOT) – Recommended

Considerations	Best Practice Attributes
▶ Oregon has a long-established system planning process that is performance based and links to programming and project prioritization. ▶ Oregon has worked extensively on how to be multimodal, especially in regard to the multimodal corridor between Portland and Eugene, which could be compared with the Phoenix – Tucson corridor (although land use considerations are very different).	▶ **A portion of available funds are distributed based on policy.** For example, "modernization" funds are allocated to regions by a formula that includes vehicle registrations, truck ton-miles, VMT, population, gas tax revenues, and needs from the Oregon Highway Plan. ▶ **The statewide multimodal planning process focuses on goal-based approaches, but performance targets are identified as well**. For example, greenhouse gas (GHG) planning includes objective-driven targets. ODOT also sets performance targets for transportation safety planning and measures results annually.

▶ Oregon is characterized by a large dominant metropolitan area/corridor between Portland and Eugene and geographically diverse and less populated regions elsewhere with very different needs. ▶ Oregon has a well established approach for customer, regional, and MPO collaboration in the process. ▶ Oregon has experienced financial circumstances similar to that of Arizona.	▶ **ODOT has mature statewide modeling and analytical capabilities** and can model and evaluate system performance under different investment scenarios very well. ODOT thoroughly considers and analyzes outcomes at the statewide programmatic level with sufficient detail to include specific projects in the formation of strategy.

Colorado (CDOT) – Recommended

Considerations	Best Practice Attributes
▶ Colorado is similar to Arizona with its large metro area and smaller mountain towns. The state has experienced growth, which is likely to resume in the planning horizon. ▶ In Colorado, regional planning organizations and regional project-specific plans play a strong role. ▶ Colorado has been working to have statewide investment priorities drive the statewide approach and regional project-specific plans. ▶ CDOT has experienced very similar financial circumstances to ADOT. ▶ CDOT has a new plan update underway and relatively new leadership working to improve the process, which can be a good sounding board for ADOT.	▶ **CDOT sets long-term targets based on goals** and has a mature performance-based planning and investment allocation approach. ▶ **CDOT allocates financial resources within investment categories** effectively using performance measures in the process. ▶ **CDOT is beginning to incorporate cross-asset programming and prioritization** and is recognized as a national leader in this area. ▶ **Colorado has a regional planning process that establishes project specifics.** ▶ **CDOT has been very active in addressing freight and multimodal freight** within the planning process.

Utah (UDOT)

Considerations	Best Practice Attributes
▶ Utah is similar to Arizona with its large metro area and travel demand growth focused on the Wasatch front. The state has experienced rapid growth in the past, which is resuming following the economic downturn.	▶ UDOT has a nationally regarded approach for prioritizing asset management-related projects between pavement and bridge. ▶ Mobility projects tend to be set at MPO regional levels. ▶ UDOT's Geographic Information System planning framework (U-Plan) is an excellent tool.

North Carolina (NCDOT)

Considerations	Best Practice Attributes
▶ NCDOT has an improvement process underway to link investment decisions, planning, and programming. ▶ NCDOT places a strong emphasis on multimodal approaches and addressing freight in the planning process. ▶ Much of North Carolina's mobility/capacity projects are driven by unique state funding requirements that may limit applicability of lessons learned for ADOT. ▶ North Carolina has a relatively dispersed population and economy with a number of metropolitan areas that represent concentrations of travel demand.	▶ NCDOT aggressively pursues the application of tolling for new and existing facilities. ▶ NCDOT has other attributes to be evaluated if it is selected for further analysis.

Kansas (KDOT)

Considerations	Best Practice Attributes
▶ KDOT has mechanisms for prioritizing projects related to economic development. ▶ KDOT has successfully increased the state motor fuel tax, in part based on analysis of the level of performance "bought" through the application of new revenue streams. ▶ Kansas' population and economy may pose some limitations on comparability to ADOT.	▶ Local consultation with stakeholders across Kansas was central to the T-Works Program. ▶ Economic development and local priorities were included along with the engineering aspects of project selection. ▶ Relationships were maintained with local, state, and national elected officials throughout the programming process.

Pennsylvania (PennDOT)

Considerations	Best Practice Attributes
▶ Pennsylvania has a decentralized planning process with well developed regional planning organizations. ▶ PennDOT faces a significant funding shortfall. ▶ State law and current practice results in a sub-allocation of funds to regions. Consequently, PennDOT does not provide a peer process for comparison to ADOT.	▶ State law and the sub-allocation process for funding do not provide a good comparison basis to ADOT.

4 Moving Ahead for Progress in the 21st Century Act

MAP-21 includes a number of performance management and related requirements for performance-based programming that are consistent with the intent of the P2P Link project. The P2P Link project can provide the pathway through which these requirements are addressed. Among the key requirements of MAP-21 that directly affect ADOT and Arizona agencies are the following:

- States must establish targets for each performance measure and must use a performance-based approach in planning and programming surface transportation projects.
- MPOs also must establish targets for each performance measure and must use a performance-based approach in planning and programming surface transportation projects.
- Transit agencies receiving federal funding must develop transit asset management plans, report on system conditions, develop targets for DOT-specified "state of good repair" performance measures, and report on progress toward meeting performance targets.
- Regarding the National Highway Performance Program (NHPP), the Highway Safety Improvement Program (HSIP), the Congestion Mitigation and Air Quality Improvement Program (CMAQ), and Freight Policy, additional specific retirements apply, including some penalties or limitations on funding.
- States, MPOs, and transit agencies must report to the U.S. Department of Transportation (US DOT) on progress in achieving targets and commit to increasing funding in programs that do not meet them.

In keeping with the new regulations, a primary objective of P2P Link is to update ADOT's capital improvement programming process to be compliant with the requirements of MAP-21. As noted above, one of the key requirements is that states and MPOs must report their progress in achieving performance targets to the US DOT. If a state's report shows inadequate progress in some areas, the state must take appropriate corrective action.

4.1 Overview

Section 4 provides highlights of MAP-21, provisions impacting ADOT's programming process, and specific work tasks that will be addressed as part of this project. P2P Link efforts to address the requirements of MAP-21 related to capital improvement programming will need to be coordinated with other state efforts. The recommended new programming process must comply with the current legislation yet maintain flexibility to adapt to future requirements and needs.

The approach to addressing MAP-21 implementation for ADOT will occur on two levels. First, the P2P Link team will coordinate with the local efforts of ADOT and the Arizona Division of the Federal Highway Administration (FHWA), supporting their initiatives as requested. Secondly, the P2P Link will bring information to ADOT on how other states are progressing toward implementing provisions related to the programming process.

Work tasks to be undertaken by the P2P Link team will investigate the planning process as well as the programming process since these areas are closely interwoven.

P2P Link Work Tasks to Assist in MAP-21 Implementation:

- Determine what changes are needed to the ADOT planning process to include performance measures and targets in the long-range plan, as well as assessing progress in achieving the performance targets
- Establish a planning goal that correlates to the MAP-21 goal of "System Reliability"
- Identify desirable performance measures for the planning goals areas
- Identify initial targets for performance measures
- Determine application of performance measures across the statewide transportation system (National Highway System (NHS) vs. rest of system)
- Establish a comprehensive asset management approach and program for ADOT
- Support ADOT's efforts to assess programming changes that must occur to be compliant
- Identify and incorporate freight program requirements to promote improved freight movement

The programming "to be" model developed in the next phase of P2P Link (Phase 3) will identify where and how the MAP-21 requirements will be addressed within the new planning and programming structure. This will also require alignment between MPO and state metrics and targets, which could necessitate substantial coordination to establish a reasonable level of compatibility between them. The timeline for this work will enable ADOT to be well positioned to address the rules as they are promulgated by FHWA/US DOT over the next two years.

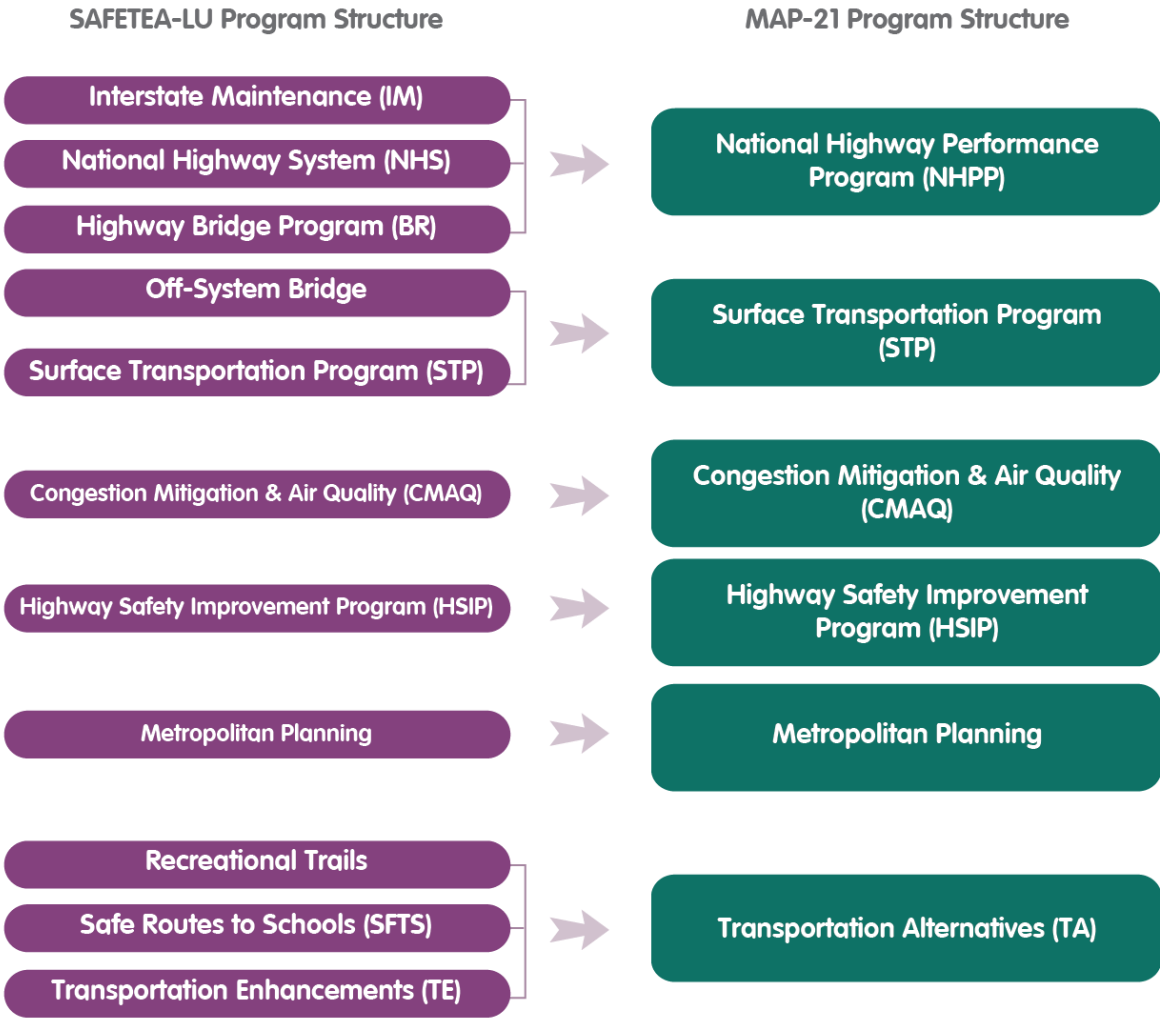
4.2 MAP-21 Provisions

MAP-21 was signed into law P.L. 112-141 on July 6, 2012. It is the first long-term highway authorization enacted since 2005, replacing the SAFETEA-LU legislation. Surface transportation program funding is authorized by MAP-21 at $105 billion for fiscal years (FFY) 2013 and 2014, with HTF contribution and tax collection extended through FFY 2016 to provide additional financial stability. As noted by the American Association of State Highway Transportation Officials (AASHTO), MAP-21 includes many of the reforms and recommendation long advocated by the states. The legislation became fully effective on October 1, 2012, which is referenced to as the date of enactment. Implementation of the requirements varies as noted in the following sections.

4.2.1 Programs

The number of federal highway programs has significantly been reduced under MAP-21, from roughly 90 to fewer than 30. Restructuring of the highway programs has been developed around the programs shown in Figure 4-1.

Figure 4-1: MAP-21 Programs Structure



MAP-21 eliminates most current discretionary programs, but many of the eligibilities have been transferred to other programs. It also creates a new discretionary program, Tribal High Priority Projects (THPP), and continues the following discretionary programs:

- Projects of National and Regional Significance (PNRS)
- On-the-Job Training Supportive Services
- Disadvantaged Business Enterprise (DBE) Supportive Services
- Highway Use Tax Evasion (intergovernmental enforcement projects)
- Work Zone Safety Grants

4.2.2 Investment

Federal authorization is $40.4 billion from the HTF for FFY 2013 and $41.0 billion for FFY 2014, which maintains FFY 2012 levels with adjustments for inflation. MAP-21 establishes an annual obligation limitation of $39.699 billion for FFY 2013 and $40.256 billion for FFY 2014 for the purpose of limiting highway spending each year. This guarantees 95% return to the states on HTF contributions.

The distribution of formula funds to each state under MAP-21 is similar to SAFETEA-LU:

- ***Step one*** – *Authorize lump sum.* A single amount (approximately $38 billion/year) is authorized to fund the core programs.
- ***Step two*** – *Calculate each state's share of the total*, adjusted, if necessary, to ensure that no state receives less than 95 cents of every dollar it contributed to the Highway Account of the HTF.
- ***Step three*** – *Divide the total amount among programs for each state.* Amounts are set aside for Metropolitan Planning and CMAQ based on the relative size of the state's FFY 2009 apportionment of those programs. The remainder is then divided among the rest of the formula programs as follows: NHPP (63.7%), STP (29.3%), and HSIP (7%). An amount is set aside from HSIP to fund the Rail-Highway Crossings program, and amounts are set aside proportionally from each state's NHPP, STP, HSIP, CMAQ, and Metropolitan Planning apportionments to fund the state's Transportation Alternatives program.

MAP-21 expands availability of innovative financing by significantly increasing funding for the Transportation Infrastructure Financing and Innovation Act (TIFIA). The TIFIA program provides federal credit assistance to eligible STP projects. MAP-21 authorizes $750 million in FFY 2013 and $1 billion in FFY 2014 to pay the subsidy cost of supporting federal credit.

State ability to use federal funds for tolling is also enhanced with MAP-21. Statutory provisions governing tolling on highways that are constructed or improved with federal funds (23 USC 129) have been changed. One significant change is the removal of the requirement for an agreement to be executed with the US DOT prior to tolling under the mainstream tolling programs, except under toll pilot programs. Other changes include the mainstreaming of tolling new interstates and added lanes on

existing interstates. MAP-21 also requires that all federal-aid highway toll facilities implement technologies or business practices that provide for the interoperability of electronic toll collection by October 1, 2016 (four years after the enactment of MAP-21's new tolling requirements).

4.2.3 Transportation Planning

In MAP-21, the metropolitan and statewide transportation planning processes are now required to use a performance-based approach. Planning efforts must incorporate performance goals, measures, and targets into the process of identifying needed transportation improvements and project selection.

Section 1203 declares the federal aid highway program should focus on seven national goals:

1. Safety
2. Infrastructure condition
3. Congestion reduction
4. System reliability
5. Freight movement and economic vitality
6. Environmental sustainability
7. Reduced project delivery delays

Requirements for a long-range plan and a short-term Transportation Improvement Program (TIP) continue, with the long-range plan to incorporate performance plans required by MAP-21 for specific programs. The long-range plan must describe the performance measures and targets used in assessing system performance and progress in achieving the performance targets. The TIP must also be developed to make progress toward established performance targets and include a description of the anticipated achievements. In the statewide and nonmetropolitan (areas with population less than 200,000) planning process, selection of projects in nonmetropolitan areas, except projects on the NHS or funded through the remaining funds of the discontinued Highway Bridge Program, must be made in cooperation with affected nonmetropolitan officials or any regional transportation planning organization.

The US DOT is required to establish criteria for the evaluation of the new performance-based planning processes. The process will consider whether states developed appropriate performance targets and made progress toward achieving the targets. Five years after enactment of MAP-21, the US DOT is to provide to Congress reports evaluating the overall effectiveness of performance-based planning and the effectiveness of the process in each state and for each MPO.

4.2.4 Performance Management

MAP-21 emphasizes performance planning and performance management for highways and public transportation. The cornerstone of MAP-21's highway program transformation is the transition to a performance and outcome-based program. States will invest resources in projects to achieve individual targets that will collectively make progress toward national goals. Performance requirements will be established in the following sections of MAP-21:

Highway Provisions:

- Section 1106: National Highway Performance Program
- Section 1112: Highway Safety Improvement Program
- Section 1113: Congestion Mitigation and Air Quality Improvement Program
- Section 1115: National Freight Policy
- Section 1201: Metropolitan Transportation Planning
- Section 1202: Statewide and Nonmetropolitan Transportation Planning

Transit Provisions:

- Section 20005: Metropolitan Transportation Planning
- Section 20006: Statewide and Nonmetropolitan Transportation Planning
- Section 20018: Transit Asset Management

MAP-21 establishes (or will establish) national performance goals for federal transportation programs. The US DOT must establish performance measures for safety, pavement conditions, bridge conditions, operational performance of the Interstate, operational performance of the non-Interstate NHS, freight movements, mobile source emissions, and congestion. For transit, US DOT must establish a national transit asset management system and performance measures for keeping transit in a state of good repair. This sets the foundation for state and MPO performance requirements that must contribute toward the national goals.

The requirements that states and MPOs report progress in achieving targets to the US DOT is significant because if a state's report shows inadequate progress in some areas, most notably the condition of the NHS or key safety measures, the state must undertake corrective actions, such as the following:

- **NHPP:** If no significant progress is made toward targets for NHS pavement and bridge condition, the state must document in its next report the actions it will take to achieve the targets.
- **HSIP:** If no significant progress is made toward targets for fatalities or serious injuries, the state must dedicate a specified amount of obligation limitation to safety projects and prepare an annual implementation plan.

In addition, because of the critical focus on infrastructure condition, MAP-21 requires that each state maintain minimum standards for Interstate pavement and NHS bridge conditions. If a state falls below either standard, that state must spend a specified portion of its funds for that purpose until the minimum standard is exceeded.

4.2.5 Project Delivery

MAP-21 provides reforms to accelerate project delivery:

- **Efficiency is gained** by broadening the ability for states to acquire or preserve right-of-way for a transportation facility prior to completion of the review process required under the National

Environmental Policy Act of 1969 (NEPA), providing for a demonstration program to streamline the relocation process by permitting a lump-sum payment for the acquisition and relocation if elected by the displaced person, enhancing contracting efficiencies, and encouraging the use of innovative technologies and practices.

- **Coordination is streamlined by** increasing the linkage between the planning and environmental review processes, using a programmatic approach where possible, and consolidating environmental documents. MAP-21 establishes a framework for setting deadlines for decision-making in the environmental review process, with a process for issue resolution and referral, and penalties for agencies that fail to make a decision. Projects stalled in the environmental review process can get technical assistance to speed completion within four years. One area in particular that MAP-21 focuses on to speed up project delivery is expanded authority for use of categorical exclusions (CEs).

4.2.6 Other Provisions of Interest

MAP-21 includes a number of provisions designed to enhance freight movement in support of national goals. MAP-21 firmly establishes national leadership in improving the condition and performance of a National Freight Network by identifying the components of the network, which will be designated by the Secretary of Transportation. It includes incentives to prioritize projects that advance freight performance targets. US DOT, in consultation with partners and stakeholders, will develop a national freight strategic plan. States are encouraged to develop individual freight plans and establish freight advisory committees. No changes to current truck size and weight provisions are included in MAP-21, but a new study and inventory of current state laws is required.

4.3 Considerations for Arizona

4.3.1 Implementation Status

Shortly following the enactment of MAP-21, ADOT and the local division of FHWA began working on its implementation in Arizona. A work group was formed to systematically gain a comprehensive understanding of the law and identify areas that would require ADOT to change how business is currently being conducted. The early activities of the work group included assigning teams to specific sections of MAP-21 to complete a Preliminary Implementation Assessment. The assessment outlined the following questions:

Section Analysis

- What will ADOT have to do differently under MAP-21?
- What additional flexibilities will ADOT have?
- Will any stakeholders be affected and, if so, how? Which stakeholders will be affected? How will stakeholders be affected? (e.g., delays in approved plans, project delivery).
- Are there any major policy implications to either ADOT or its stakeholders? If so, what are they? (ADOT policy implications; stakeholder policy implications).

- What questions need to be answered by ADOT or FHWA to enable implementation?

Preliminary Assessment

- Will additional resources be needed to implement this Section of MAP-21?
- Will any statutory, rule, or policy changes be needed to implement this Section of MAP-21?
- What ADOT or FHWA process changes will be needed?
- Will ADOT need to develop any implementation tools or training materials?
- Is there anything else that will be needed for a successful implementation?

To date, a compilation of the information was reviewed by the ADOT Executive Team then submitted to the Arizona Division of FHWA. Next steps will be determined based upon the input provided. Implementation efforts have similarly begun between MAG and ADOT, but in general efforts of other state MPOs have not yet been coordinated with ADOT.

4.3.2 Planning Considerations

Prior to the enactment of MAP-21, ADOT had already taken steps toward developing a performance-based programming process. In November 2011, ADOT completed the LRTP for 2010-2035, "What Moves You Arizona?". The LRTP advanced ADOT's vision of defining an investment strategy and establishing planning goals based upon performance factors initiated in the 2010 Statewide Transportation Planning Framework "bqAZ". On the heels of LRTP completion, ADOT initiated the study to Link Planning to Programming, the P2P Link project.

Statewide

The goals established in MAP-21 are compared alongside of the LRTP plan area goals in Table 4-1. Substantively, the MAP-21 and LRTP goals correlate with the exception of "System Reliability," which was not identified in the LRTP.

MAP-21 requires Arizona to integrate the national performance measures and targets into its statewide transportation planning process and other plans. Arizona must consider these performance measures and targets in state transportation policies, programs, and investment priorities. A system performance report presenting the performance measures and targets is to be prepared for US DOT evaluation. The State Transportation Improvement Program (STIP) must also include a discussion of how the STIP will help achieve the state's performance targets.

Section 1202 of MAP-21 further notes that the US DOT must not require Arizona to "deviate from its established planning update cycle to implement changes made by this section". However, ADOT must reflect changes to its plan and STIP updates within two years after US DOT issues guidance on this section.

Table 4-1: Planning Goals

MAP-21 Goals	LRTP Goals
Congestion Reduction	Improve Mobility and Accessibility
Infrastructure Condition	Preserve and Maintain the State Transportation System
Freight Movement and Economic Vitality	▶ Support Economic Growth ▶ Strengthen Partnerships
Environmental Sustainability	▶ Consider Natural, Cultural, and Environmental Resources ▶ Link Transportation and Land Use
Safety	Enhance Safety and Security
Reduced Project Delivery Delays	Promote Fiscal Stewardship
System Reliability	

Metropolitan Areas

MPOs are also required to include "system performance reports" as part of their transportation plans. More specifically, states must include in their statewide transportation plan an assessment of how MPOs are achieving progress toward performance targets in their regions. Both the S/TIP must also be developed to demonstrate progress is being made toward established performance targets and include a description of the anticipated achievements. Five years after enactment of MAP-21, the Secretary of Transportation is to provide to the Congress reports evaluating the overall effectiveness of performance-based planning and the effectiveness of the process in each state, including each MPO within it.

The proposal takes a performance-based approach to the transportation planning process. Five national goals are set for the planning process: safety, infrastructure condition, system reliability, freight movement, and environmental sustainability. All state and metropolitan LRTPs must describe how project selection decisions will help meet performance targets related to national goals. Failure to establish performance targets and comply with other elements of the planning process can result in a plan not being certified and up to 20% of planning funds being withheld.

4.3.3 Programming Considerations

With specific regard to ADOT's programming process, MAP-21 requires changes to how ADOT must address performance management and asset management.

Performance Management

The US DOT is required to establish performance measures and standards as specified by the following program and policy areas:

- Minimum standards for bridge and pavement management systems to be used by states (NHPP)
- Performance measures for pavement condition on the Interstate system (NHPP)
- Performance measures for pavement condition on the non-Interstate NHS (NHPP)
- Performance measures for bridge conditions on the NHS (NHPP)
- Performance measures for the performance of the Interstate System (NHPP)
- Performance measures for performance of the non-Interstate NHS (NHPP)
- Minimum levels for pavement conditions on the Interstate System (which may be differentiated by geographic regions of the United States) (NHPP)
- Performance measures to assess serious injuries and fatalities per VMT (HSIP)
- Performance measures to assess the number for serious injuries and fatalities (HSIP)
- Performance measures for traffic congestion (CMAQ)
- Performance measures for on-road mobile source emissions (CMAQ)
- Performance measures to assess freight movement on the Interstate System (Freight Policy)

Within 18 months of enactment, the US DOT, in consultation with states, MPOs, and other stakeholders, is directed to publish a rulemaking establishing measures for states to use. The US DOT is limited to the above performance measures and may not establish other measures and standards under Section 1203.

Within one year of US DOT publishing rulemaking, Arizona must set performance targets for the established performance measures. In establishing performance targets, ADOT may establish different targets for urbanized and rural areas of the state.

Within four years of enactment (and biennially thereafter), ADOT must submit a report to US DOT describing the NHS condition and performance of the NHS within the state, the effectiveness of Arizona's investment strategies in the NHS asset management plan, progress in achieving the performance targets, and the way the Arizona is addressing freight congestion.

Table 4-2 summarizes various features of the performance requirements imposed by MAP-21 that affect ADOT.

Asset Management Highway

Arizona must develop an asset management plan for the NHS to improve or preserve condition and performance of the NHS. The asset management plan must contribute to achieving the state's NHS performance targets. States are encouraged to include all infrastructure assets within the right-of-way corridor.

Table 4-2: Performance Measures for Major Programs

Program	New Performance-Based Features
NHPP	▶ Performance measures to be set by US DOT for Interstate and NHS pavement condition, NHS bridge condition, and Interstate and NHS performance. ▶ Minimum standards to be set by US DOT for developing and operating bridge and pavement management systems. ▶ Minimum conditions to be set by US DOT for Interstate pavements – may vary geographically. ▶ Data elements to be set by US DOT necessary to collect and maintain standardized data to carry out a performance-based approach. If ADOT does not meet or make significant progress toward targets for two consecutive reporting periods, ADOT must document in its next report the actions it will take to achieve the targets. In addition, if more than 10% of the total deck area of NHS bridges in Arizona is on structurally deficient bridges for three consecutive years, ADOT must devote NHPP funds in an amount equal to 50% of the state's FFY 2009 Highway Bridge Program apportionment to improve bridge conditions during the following fiscal year.
HSIP	▶ Measurements to be set by US DOT for the number of serious injuries and fatalities and the number per vehicle mile of travel. ▶ US DOT is required to carry out a study of High Risk Rural Road "best practices." ▶ ADOT to incorporate strategies that focus on older drivers and pedestrians if fatalities and injuries per capita for those groups increase. ▶ Although MAP-21 eliminates the requirement for every state to set aside funds for High Risk Rural Roads, ADOT is required to obligate funds for this purpose if the fatality rate on such roads increases. If ADOT fails to make progress toward its safety targets, it will have to devote a certain portion of its formula obligation limitation to the safety program and submit an annual implementation plan on how Arizona will make progress to meet performance targets.
CMAQ	▶ Measurements to be set by US DOT to assess traffic congestion and on-road mobile source emissions. ▶ Each MPO with greater than one million in population representing a nonattainment or maintenance area is required to develop and update biennially a performance plan to achieve air quality and congestion reduction targets.
STP	▶ Although there are no measures tied specifically to this program, it supports national performance goals.

The asset management plan must include at least the following:

- Summary list, including condition, of Arizona's NHS pavements and bridges
- Asset management objectives and measures
- Performance gap identification
- Lifecycle cost and risk management analysis
- Financial plan
- Investment strategies

The US DOT must review and certify ADOT's asset management process. If US DOT determines that ADOT has failed to develop and implement such an asset management plan, the federal share for the state for that fiscal year shall be lowered to 65%.

Transit

All federal aid grant recipients are required to prepare asset management plans. The FTA will develop rules governing this requirement. The expectation is that these rules will reference the Transit Asset Management Guide. ADOT can be expected to continue to provide assistance to grant recipients to comply with this requirement.

Freight

According to Section 1115, the US DOT must prepare a report describing the conditions and performance of the national freight network within two years of MAP-21 enactment (and biennially thereafter). In addition, within one year of enactment, US DOT must begin developing new tools and improvement of existing tools for "an outcome-oriented, performance-based approach to evaluate proposed freight-related and other transportation projects." The performance provisions for freight are not as detailed as the NHPP, CMAQ, and HSIP presumably because they channel funding to states and MPOs, whereas MAP-21 does not provide for freight program funding.

5 Conclusions

ADOT is expected to update its programming processes to meet the new requirements imposed by MAP-21, but even more importantly, to be able to more effectively meet state-adopted policy for the state transportation program. To accomplish these objectives, significant changes must occur in the way projects identified in the LRTP are brought into the capital improvement program. These changes will affect ADOT, as well as partner agencies, in that all programming of projects will be expected to rely on established performance monitoring targets and be part of a statewide asset management program. How the performance requirements will be defined is part of this effort and will include a review of existing ADOT programs that already comply and an analysis of other agencies that have developed innovative ways to manage their transportation programs. During the review of these programs and practices, ADOT will have to consider how they relate to Arizona's needs and how they implement the state's policy direction for the transportation system while remaining compatible with national requirements. Among the findings related to how the LRTP can be most effectively translated into implementation steps through the capital program are the following:

- ADOT has successful examples of performance-based programs in pavement preservation and bridge that provide an example that can serve as a guide to other requirements.
- MAP-21 has imposed substantially more—and potentially more complex—performance requirements on overall transportation system management that will need to be incorporated into the ADOT planning and programming process.
- Current ADOT internal programming procedures are not widely understood within the organization, which provides an opportunity to broaden that understanding even as additional requirements become part of the annual process.
- ADOT internal procedures will change to accommodate the new requirements and to establish a "best in class" system of planning, programming, monitoring, and management.